

# NASA TECH BRIEF

## *Langley Research Center*



NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

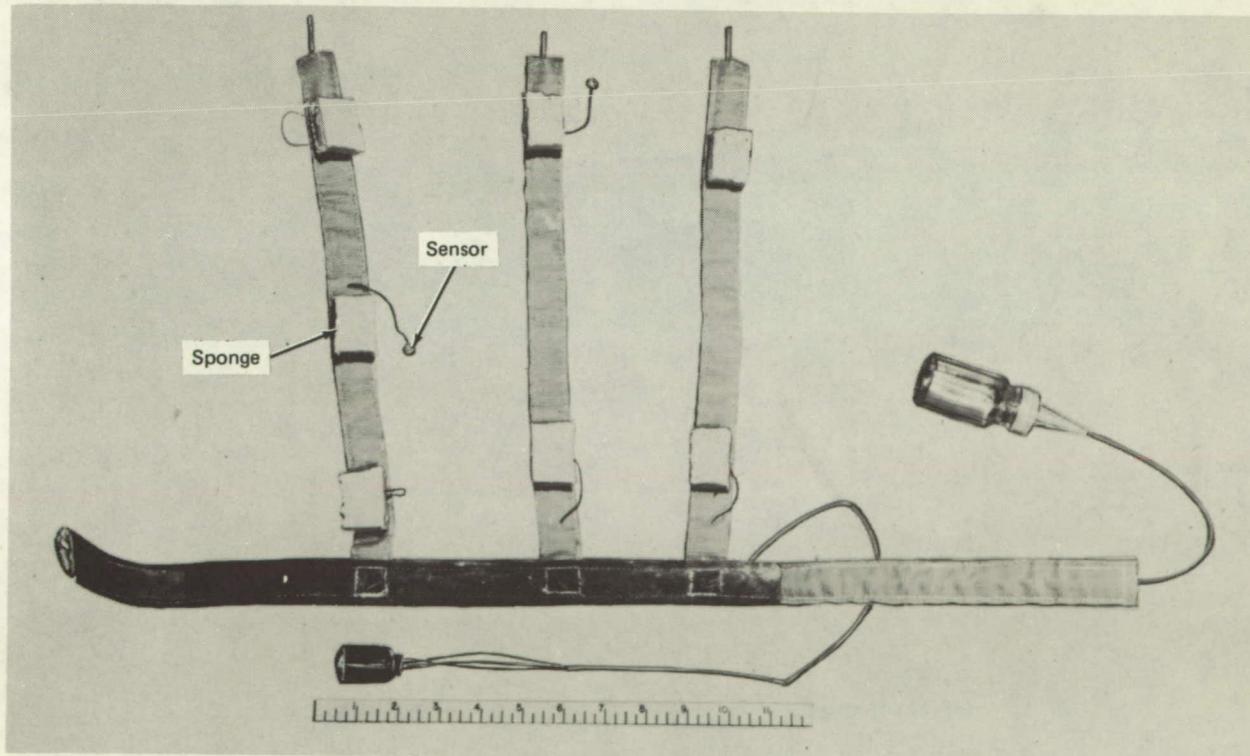
### Flexible Electroencephalogram (EEG) Headband

Brain wave signals need to be monitored over extended time periods during artificial gravity testing in a rotational test facility. This necessity for continuously monitoring brain wave signals led to the development of a new method of applying sensors in a headband which eliminates pressure points and subject discomfort.

Previously, needle electrodes or surface electrodes were mounted on solid holders. The needle electrodes caused discomfort, had higher skin resistance, and required sterilization. The surface electrodes were cumbersome to apply, slipped on the scalp, produced artifacts, and formed pressure points.

The redesigned headband, shown in the illustration, incorporates sensors which are embedded in sponges and are exposed only on the surface that touches the skin. Velcro is used to hold the sponges to the headband. The sponges act as flexible electrolyte storage reservoirs which contain potassium chloride as the electrical conducting medium for the brain wave sensors. Potassium chloride is used because it has a higher conductivity than sodium chloride. The electrode sponge system is continually fed electrolyte through a forced feed vacuum system also built into the headband.

The new EEG headband provides a more versatile device for brain wave monitoring and can be worn



Flexible EEG Headband

(continued overleaf)

comfortably for longer periods of time. This improved headband may be used for EEG testing in hospitals, clinical laboratories, rest homes, and law enforcement agencies.

**Note:**

No additional documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer  
Langley Research Center  
Mail Stop 139-A  
Hampton, Virginia 23365  
Reference: B73-10048

**Patent status:**

NASA has decided not to apply for a patent.

Source: L. J. Raggio of  
North American Rockwell Corp.  
under contract to  
Langley Research Center  
(LAR-10927)